economic notes

THE DIVERSIFICATION OF STATE ECONOMIES IN AUSTRALIA

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It is important to supplement analysis of national economic trends and policies with analysis of economic conditions in the states. Claims are commonly made, especially by state premiers, about comparative performance. In the last couple of years a numbers of economic studies have identified Western Australia and Queensland as having the best prospects and opportunities for economic growth in Australia (Adams and Dixon, 1993; Bureau of Industry Economics, 1994; Price Waterhouse and University of New South Wales, 1993).

A more careful examination of the empirical data suggests that the nature and structure of state economies have experienced only minor changes throughout the 1980s and early 1990s, indicating that the states remain dependent on highly vulnerable industries such as agriculture, mining and tourism. These data also suggest that the prospects for diversifying regional economies, including Queensland and Western Australia, are uneven.

Whilst recent economic commentary has focussed attention on the relative performance of state economies over the past decade, this paper evaluates future prospects for industrial development according to recent patterns of private and public investment. Here, it is suggested here that recent economic commentary on the Victorian economy has tended to underestimate its capacity to capitalise on emerging industry sectors. The problems which might arise in Western Australia as a consequence of the state's heavy dependence on mining have also been neglected. The mainstream economic literature concerning future prospects for economic growth has also often failed to consider the extent to which

states have invested in technology development. This deficiency is redressed here by the analysis of expenditures on research and development and on science and technology programmes.

State Investment in New Industry Sectors

As a starting point for examining prospects for future economic diversification, sectoral growth in Gross State Product (GSP) provides an indicator of the general direction of industrial development within the states. Bureau of Industry Economics (1994: 12) data for the decade ending 1991/92 indicates that the fastest growing industry sector in all states except Tasmania was mining, with an average growth in base GSP of 169%. This was about 15 times the average increase in GSP across all industry sectors. States have become more dependent on mining as a source of economic prosperity. The only significant growth in the manufacturing sector over this period occurred in South Australia and Western Australia. The contribution of manufacturing to GSP declined in real terms in both New South Wales and Victoria over the period. In most states, the contribution of agriculture to GSP declined relative to the average growth of all industries. The exceptions were Victoria and Tasmania where base GSP attributed to agriculture increased at over double the rate of the all industry average.

Table 1 summarises trends in GSP over a slightly longer time-frame, and highlights the main issues relating to economic diversification. Despite the large growth in mining-related GSP indicated in the BIE data, all states except Western Australia reduced their dependence on primary industry as a whole (mining, agriculture, forestry and fishing) over the period 1981/2 to 1992/3. However, the contribution of manufacturing to GSP also declined in all states. The sectors which have made significant increases in their contribution to GSP are finance, property and business services, and housing, personal services and recreation.

Both the BIE data and the ABS data summarised in table 1 indicate that, although mining's share of GSP has increased significantly throughout the 1980s, state economies have become less dependent overall on primary industries. This has been achieved by diversifying into service

industries such as finance, property and business services, transport and communications. Some of these industries may have the potential to contribute to Australian export income, although growth in housing, personal services and recreation is mostly related to servicing an increase in population, and growth in another 'vulnerable' industry, tourism. All states failed to increase the contribution of manufacturing to their regional economies.

Table 1: Sector Share of Gross State Product, 1981/82 and 1992/93

Industry Sector	Year	NSW (%)	Vic (%)	Qld (%)	SA (%)	WA (%)	Tas (%)
Primary Industries	1981/82	6.5	9.3	14.1	9.1	17.5	10.3
	1992/93	4.3	7.3	10.5	6.7	20.0	7.5
Manufacturing	1981/82	20.3	23.6	15.1	20.0	14.9	18.3
	1992/93	14.9	18.8	12.2	19.5	10.7	15.9
Construction and	1981/82	10.8	9.9	13.3	10.6	11.8	13.2
Utilities	1992/93	10.5	10.0	12.0	9.1	11.6	12.5
Transport and Trade	1981/82	22.5	21.5	22.3	22.4	21.4	20.6
	1992/93	23.4	21.0	23.8	21.4	20.2	22.4
Government	1981/82	18.2	18.4	17.5	21.3	18.6	23.1
	1992/93	17.8	19.6	18.9	21.3	18.3	22.3
Finance, Property							
and Business	1981/82	8.0	6.2	5.9	5.2	5.6	4.2
Services	1992/93	12.5	10.2	8.0	9.0	8.4	5.9
Housing, Personal							
Services and	1981/82	13.9	11.1	11.8	11.5	10.2	10.2
Recreation	1992/93	16.7	13.0	14.7	12.9	10.8	13.5

Source: 1981/82Calculated from Australian Bureau of Statistics (ABS), *Australian National Accounts 1992-93, Catalogue No. 5220.0*, Tables 14-19, 1994

There are some important differences between states which need to be considered. Western Australia has increased its dependence on primary industry, particularly mining. Western Australia's manufacturing sector remained the smallest of all Australian states, despite making significant gains in base GSP attributable to manufacturing. On the basis of GSP, the state which appears to have been most successful in diversifying its economic base is Queensland. It reduced its dependence on primary

industries through high growth in the contribution to GSP of transport and communication and housing, personal services and recreation.

Industry Assistance

What role have state governments played in reorientating state economies? During the period 1988/89 to 1992/93, average state government assistance to 'vulnerable' industries, such as agriculture and fisheries, mining fuel and energy, and tourism increased by about $3.8 per head of population whilst services to 'other industries' including manufacturing and service industries increased about 60 cents per head. In 1992/93, assistance to agriculture and fisheries represented 45% of total state government industry assistance whilst mining and tourism accounted for 24% of state government support (Commonwealth Grants Commission, 1994: 157 & 165).

Thus, state government industry support has encouraged further dependence on agriculture, mining and tourism, and offered little assistance to the development of new industry sectors in the manufacturing and service sectors. Significant variations exist between the states. Whilst the proportion of state government industry assistance allocated to primary industries and tourism declined by about 3% in Queensland and South Australia over the period 1988/89 to 1992/93, these industry sectors increased their share of Western Australia's industry assistance expenditure by about 5%. Victoria has been noted for its policies of industry assistance throughout the 1980s and yet this is not reflected in Grants Commission (1994) data. Over the period, Victoria was the only state to register a decline in total industry assistance *per capita*, and assistance to the 'vulnerable' industry sectors.

Table 2 indicates the type of assistance being provided by state governments in Australia. Government expenditure on research and development (R&D) and science and technology (S&T) industry programs show the extent of state governments' support for future technology-based industries. Tasmania and Western Australia stand out as the states where total industry assistance *per capita* have been highest, with Victoria at the other extreme. However, looking at how much of the

overall assistance is directed towards R&D and S&T, a different picture emerges. According to the latter measure, industry assistance in Victoria and South Australia has been mainly directed towards future industry development. Victoria, in particular, has focussed on developing new industries, as reflected in its expenditure on S&T industry programs ($28.2m in 1992/93), whilst South Australia has directed a high level of its industry support in R&D.

Table 2: State Government Industry Assistance and Support for S & T Programs, 1992/93 ($ Millions)

State	Industry Assistance ($M)[1]	R & D Spending ($ M)[2]	S & T Industry Programs ($ M)[3]
NSW	353.3 (59.04)	148.4 (42)	6.2 (2)
Vic	206.0 (46.23)	127.7 (62)	28.2 (14)
Qld	290.8 (94.68)	149.2 (51)	7.5 (3)
WA	222.2 (133.26)	79.5 (36)	1.8 (1)
SA	109.1 (162.01)	69.4 (64)	1.6 (2)
Tas	76.3 (162.01)	20.2 (26)	Nil
Total (average)	**1257.7 (78.13)**	**615.5 (49)**	**45.3 (4)**

Sources: Commonwealth Grants Commission (1994), *Report on General Revenue Grant Relativities 1994 Update*, Canberra, AGPS;

ABS, *Research and Experimental Development: General Government and Private Non-profit Organisations Australia, 1992-93*, Catalogue No 8109.0;

Industry Commission (1993), *Annual Report 1992-93*;

Annual Reports of state agencies.

This data on industry assistance may also indicate poor prospects for diversification in Western Australia where a small portion of the state's relatively high levels of industry assistance is directed towards R&D or S&T industry programs. Similar problems exist in Tasmania where

1 The figures in brackets represent dollars spent on industry assistance per capita.

2 The figures in brackets represent the percentage of total industry assistance spending.

3 The figures in brackets represent the percentage of total industry assistance spending

R&D represents only 26% of total state industry assistance. Table 2 suggests that state government industry support in Queensland and Victoria is more likely to achieve new technology-related industries than in other states. State government intervention in Queensland is moderately high with a focus mainly on R&D but also attention is given to the later stage development of S&T industries. Prospects for developing new industries in Victoria are enhanced by a considerable focus on industry programs assisting the development of new S&T-based industries. Victoria's overall expenditure on R&D is unremarkable in comparison to other states, although it represents a high proportion of total industry assistance in the state.

Research and Development: Government Expenditure

Table 3 provides data on state government spending on R&D as a percentage of GSP. This provides a clearer indication of the extent to which states have given increased attention to R&D as an industrial development policy instrument. Evidently, Queensland, South Australia and Tasmania have the highest levels of state government R&D spending as a proportion of GSP, and New South Wales the lowest. State government R&D efforts in Queensland have been consistently high over the past decade, in comparison to other states, whilst Victoria and New South Wales have continued to maintain low levels of State government expenditure on R&D, although Victoria's research effort as a proportion of GSP has increased between 1984/85 and 1992/93.

State government R&D efforts in Tasmania and South Australia increased significantly over the same period, with R&D in South Australia increasing by over 40%, the highest of any state. The only state to decrease its research efforts was Western Australian where state government R&D declined by over 25%, although the state continued to maintain a higher commitment to R&D than New South Wales and Victoria. Thus, this indicator suggests that Queensland, South Australia and Tasmania are in the strongest position regarding the overall level of state government contributions to their future industrial development.

Table 3: State Government Research and Experimental Development Expenditure as a Percentage of Gross State Product at Market Prices

Year	NSW (%)	Vic (%)	Qld (%)	WA (%)	SA (%)	Tas (%)
1984-85	0.10	0.08	0.20	0.26	0.16	0.18
1988-89	0.10	0.09	0.22	0.17	0.17	0.19
1992-93	0.11	0.12	0.23	0.19	0.23	0.23

Source: ABS, *Australian National Accounts: State Accounts*, Catalogue No 5220.0, table 1, 199

ABS, *Research an Experimental Development: All sector summary, 1984-85 and 1988-89*, Catalogue no 8112.0

ABS, *Research and Experimental Development: General Government and Private Non-profit Organisations Australia, 1992-93*, Catalogue No 8109.0

It is also important to ask which industry sectors are the focus for R&D expenditures. Primary product-related research accounted for over 50% of all government economic development-related research in Australia in 1992-93, and 30% of total research. This suggests that public sector research in Australia is reinforcing historical dependencies on agricultural industries. In addition, spending on minerals and energy-related public R&D accounted for 14% of economic-development related research, and 8% of *all* government research spending. Agriculture and mining industries were the target of about two-thirds of total government economic development-related research in 1992-93 (ABS, 1992/93, No. 8109.0, table 7).

Primary industry-related research accounted for 83% of total *state and local* government-funded economic development-related research in 1992-93, and 59% of total research spending. In the same year, mineral and energy-related state and local government-funded research accounted for about 4% of economic development-related R&D, and about 3% of total research (ABS, 1992/93, Catalogue No. 8109.0, table 5). In general, state governments have failed to use their research capacities to diversify their economies into new sectors.

However, the extent to which government-funded research reinforces dependence on agriculture and mining varies between states. The

proportion of Commonwealth and State government-funded economic development-related research focussed on agriculture and mining is 89% in Tasmania, 87% in Western Australia and 83% in Queensland (83%). Victoria had the highest proportion of government R&D directed towards manufacturing (34% of economic development-related research), and New South Wales had the highest portion directed towards construction and service industries (16% total economic development-related research) (ABS, 1992/93, Catalogue No. 8109.0, table 5).

This analysis of all government research by state once again suggests that Victoria is well-positioned in relation to the development of new industries in sectors other than agriculture and mining. It has the highest absolute levels of government R&D expenditure of all states, the highest expenditure on economic development-related government R&D, and the most diverse spread of research across industry sectors, especially with respect to important value-added sectors such manufacturing. The profile of government research in New South Wales is similar although this state is not benefiting from such high levels of absolute R&D expenditure as Victoria. As has been the case with previous indicators of future industrial development, these government R&D data suggest that Western Australia and Tasmania appear to be locked into commodity-based industry sectors with little government economic development-related R&D being directed towards new industries which might emerge in the manufacturing and service sectors.

Research and Development: Private Sector Spending

Similar patterns emerge in relation to private sector investment in R&D (ABS, 1992-93, Catalogue No. 8104.0, table 7). New South Wales and Victoria account for over 75% of total private sector R&D spending in Australia, although these states represent about 60% of gross domestic product (GDP) (ABS, 1992/93, Catalogue No. 5220.0, table 1). In the manufacturing and service sectors most responsive to the development of new industries, New South Wales and Victoria account for 75% and 80% respectively of business R&D spending in Australia, although New South Wales's share of manufacturing-related business R&D is slightly below the state's contribution to national GDP. The only major private

sector research concentration outside New South Wales and Victoria is mining R&D in Queensland and Western Australia. These states account for about 48% of all mining-related private sector research in Australia with New South Wales and Victoria accounting for a further 45%.

Thus, patterns of private sector R&D are broadly similar to government R&D. Victoria is particularly well positioned to develop new industries which may emerge as a consequence of private sector R&D. In 1992-93, the state represented about one-quarter of national GDP and yet accounted for 42% of business manufacturing-related research, and 39% of total business R&D spending. The regions with poor levels of business R&D compared to their GSP were Queensland, which accounted for about 7% of total business R&D, and Tasmania and the Territories which accounted for about 2% of total business investment.

Capital Investment

A final indicator of the prospects for state economies is private sector capital expenditure. Here, the state share of national capital expenditure can be compared with state share of GSP. On that basis, Western Australia's share of investment has consistently exceeded the share of the state's economy, or total gross domestic product. In the early 1990s the state's share of new private capital investment was double Western Australia's share of GDP. The state which has under performed in comparison to its share of GDP is Victoria whose share of new private capital expenditure has been about 5% less than its share of GDP over the period 1984/5 to 1993/4 (ABS, 1986-1994, Catalogue No 5646.0). South Australia's share of private sector investment has been marginally less than its share of GDP over the same period, with the state's position declining in the early 1990s. Apart from some periodic variations, New South Wales, Queensland and Tasmania have maintained a share of private capital investment which has approximated their share of national GDP.

Incomplete data makes precise sectoral comparison between states difficult although several elements of this data assist in understanding the nature and future of state economies. For example, in the period 1984/5

to 1993/4, there has been a considerable decrease in the new private sector capital invested in finance, property and business services, declining from 42% of total capital expenditure in all states to 14% (ABS, 1986-1994, Catalogue No 5646.0). This suggests that the rate of increase of this sector's share of GSP identified earlier in Table 1 is likely to slow in future.

In the early 1990s, the manufacturing sector improved its share of state private sector investment in New South Wales, Victoria, Queensland and South Australia whilst the manufacturing sector's share of capital investment in Western Australia declined (ABS, 1986-1994, Catalogue No 5646.0). Regional sectoral differences are important in understanding the nature of private investment in Australia. Western Australia's very high levels of capital investment are mostly a consequence of increased expenditure in the mining sector: in 1984/5 mining accounted for 42% of Western Australia's total private capital expenditure but represented 66% of investment in 1993/4.

Over the same period, mining investment in Queensland increased from 18% of new private capital to 24%, but this state's share of total manufacturing-related new capital investment increased from 10% to 14% whilst Western Australia's share of national investment in the manufacturing sector decreased from 10% to 8%.

Conclusions

Drawing conclusions about diversification and growth prospects is not easy. There is no consensus 'ranking' of states according to the various descriptive indicators reviewed here. In general, it appears that the states which have been most successful in broadening their economic base over the past decade are Queensland and South Australia. However, all states except Western Australia have experienced *small* reductions in their dependence on primary industries by expanding their service sectors. The future value of these changes will depend on the capacity of states to translate these industries into *export* service industries.

Although manufacturing has become less important to state economies over the past decade, there are some indications that the significance of

this sector may increase as old manufacturing industries are replaced by emerging technology-based industries. In this respect, the capacity of the Victorian economy to take advantage of developments of this nature appears to have been underestimated by the economic reports identified at the beginning of this paper. Victoria is particularly well-positioned in relation to both private sector and government funded R&D, despite comparatively low levels of state government-funded research, and has concentrated its state government industry assistance towards the development of new S&T-based industries. In addition, Victoria has continued to attract high levels of manufacturing-related new capital investment in comparison to its GSP or population, although the state's levels of total capital expenditure have been marginally below the state's contribution to national GDP. Thus, Victoria should benefit more than other states from any expansion of Australia's high value-added manufacturing sector.

On the basis of the data reported in this paper, optimistic predictions concerning Queensland's economy appear exaggerated since there are some considerable problems with respect to patterns of state government intervention and private sector investment in the state. Despite diversification of the state's economy over the decade ending 1992-93, government industry assistance and research efforts have continued to direct the economy towards 'vulnerable' primary and tourism industries. Whilst the state government has increased its comparatively high levels of R&D over the past decade, this research has been mostly concentrated on agriculture. Levels of business R&D in Queensland have continued to be poor, and capital investment in the mining sector has remained high although the manufacturing sector has recently increased its share of state private capital expenditure.

Finally, predictions concerning the West Australian economy have failed to account for the extent to which its economy is dependent on mining. Most indicators suggest that Western Australia's economy has become more vulnerable by being concentrated on an industry where the real value of its commodities has declined over the past decade (Ryan, 1994).

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